WHAT IS CLAIMED IS:

1. A demodulation method for demodulating an FSK-modulated digital signal, the method comprising steps of:

counting the number of waves of the FSK-modulated digital signal in every certain time period; and

judging a digital signal based on the number of waves.

2. The demodulation method according to claim 1, wherein the certain time period is a bit-corresponding period corresponding to each bit of the FSK-modulated digital signal.

3. The demodulation method according to claim 2, wherein the bit-corresponding period is a bit time width that is equal to a time length of one bit of the FSK-modulated digital signal, and the counting step has a plurality start timings that are different from each other within the bit time width, and counts a plurality of the numbers of waves of the FSK-modulated digital signal in a plurality of the bit time widths that start in the plurality start timings.

4. The demodulation method according to claim 3, further comprising steps of:

designating one of the start timings based on the plurality of the numbers of waves as a synchronized timing corresponding to a bit border of the FSK-modulated digital signal; and

defining a time period of the bit time width separated

by the synchronized timing as the bit-corresponding period.

5. The demodulation method according to claim 1, wherein the certain time period is a divided period that is shorter than the time length of one bit of the FSK-modulated digital signal.

6. A demodulator that demodulates an FSK-modulated digital signal, the demodulator comprising:

counting means for counting the number of waves of the FSK-modulated digital signal in every certain time period; and

judgment means for judging a digital signal based on the number of waves.

7. The demodulator according to claim 6, wherein the certain time period is a bit-corresponding period corresponding to each bit of the FSK-modulated digital signal.

8. The demodulator according to claim 7, further comprising designating means for designating a synchronized timing that corresponds to a bit border of the FSK-modulated digital signal,

wherein the counting means defines a time period that is separated by the synchronized timing designated by the designating means as the bit-corresponding period.

9. The demodulator according to claim 8, wherein the

designating means comprises:

wave number detection means for detecting the number of waves of the FSK-modulated digital signal in multiple kinds of counting periods that periodically repeat a bit time width, which is a time length of one bit of the FSK-modulated digital signal, and that have a plurality of start timings that are different from each other within the bit time width; and

selection means for selecting a start timing of the counting period as the synchronized timing based on the number of waves so that the judgment means judges easily.

10. The demodulator according to claim 9, wherein the wave number detection means comprises:

a counter that counts a plurality of numbers of waves of the FSK-modulated digital signal within the counting periods; and

timing switch control means that sequentially switches the start timings to one of the start timings for the counter.

11. The demodulator according to claim 10, further comprising timing setting means that sets the counter to operate at the synchronized timing selected by the selection means, wherein the counter that is set by the timing setting means is used as the counting means.

12. The demodulator according to claim 9, wherein the wave number detection means has a plurality of counters that

operate at different start timings from each other, and that count the numbers of waves of the FSK-modulated digital signal in each counting period.

13. The demodulator according to claim 12, wherein the counting means uses the counter that operates at the synchronized timing selected by the selection means.

14. The demodulator according to claim 9, wherein the wave number detection means comprising:

a counter that counts the additional numbers of waves of the FSK-modulated digital signal in every divided period that is a division of the bit time width by a number of kinds of the start timings; and

wave number calculation means that calculates the numbers of waves of the FSK-modulated digital signal in each counting periods having different start timings based on the additional number.

15. The demodulator according to claim 14, wherein the counting means uses one of the calculated number, which is provided by the wave number calculation means in correspondence with the synchronized timing selected by the selection means, as the number of waves.

16. The demodulator according to claim 10, wherein the counter is reset at every starting of the counting periods,

and a count value of the counter at an end of the counting period is directly used as the number of waves of the FSK-modulated digital signal in the counting period.

17. The demodulator according to claim 10, wherein the counter is a free-run counter, and the number of waves of the FSK-modulated digital signal in the counting period is obtained from the count value of the free-run counter at the starting and ending of the counting period.

18. The demodulator according to claim 9, wherein the selection means calculates average values of the count numbers that are inferred to correspond to signal levels in every counting periods having different start timings, designates differences of the average values as judgment values, and selects a start timing of the counting period at which the judgment value is the largest.

19. The demodulator according to claim 18, wherein the selection means designates the judgment values by multiplying the number of data used for the calculation of the differences of the average values by the differences of the average values.

20. The demodulator according to claim 9, wherein the selection means calculates the number of times of occurrence of the count numbers that correspond to a middle level of the

digital signal, and excludes the start timing from an object of selection when the number of times of occurrence exceeds a certain value.

21. The demodulator according to claim 7, wherein a time difference of start timings of the counting period is set to be a time length shorter than a half of the bit-corresponding period.

22. The demodulator according to claim 7, wherein the number of kinds of start timings of the counting period is set to be a power of 2.

23. The demodulator according to claim 7, wherein the length of the counting period is set to be equal to a time length of the bit-corresponding period.

24. The demodulator according to claim 6, wherein the certain time period is a divided period that is shorter than a time length of one bit of the FSK-modulated digital signal, and the judgment means produces the digital signal based on the number of waves of every divided period.

25. The demodulator according to claim 6, wherein the FSK-modulated digital signal is a binary signal, and the judgment means produces the digital signal by comparing the number with a threshold value that is a number of waves

corresponding to the center frequency of the FSK-modulated modulated signal.

26. The demodulator according to claim 25, further comprising a threshold value setting means that sets the threshold value based on the number provided by the counting means.

27. The demodulator according to claim 26, wherein the threshold value setting means sets a middle value between a maximum value and a minimum value of the number provided by the counting means to the threshold value.

28. The demodulator according to claim 26, wherein the threshold value setting means sets an average value of the number provided by the counting means to the threshold value.

29. The demodulator according to claim 26, wherein when two peaks exist in a distribution of the number provided by the counting means, the threshold value setting means sets a middle value of the two peaks to the threshold value.

30. The demodulator according to claim 6, wherein the counting means has a count capacity that is sufficient to distinguish a difference between a maximum value and a minimum value counted in the counting period.

31. The demodulator according to claim 6, further comprising:

radio wave environment inference means that infers a surrounding radio wave environment; and

inhibiting means that inhibits an operation of the demodulator when the radio wave environment inference means judges that the radio wave environment is an inferior environment.

32. The demodulator according to claim 31, wherein the radio wave environment inference means judges that the radio wave environment is the inferior environment when a variation of the number provided by the counting means exceeds a certain upper-limit value.